CONDUCT OF OPERATIONS COURSE

Lesson Title: Introduction

Reference: (a) DOE 5480.19, Conduct of Operations Requirements for DOE Facilities

Objective: Upon completion of this lesson:

1. Understand the relation of Conduct of Operations principles to safety and productivity.
2. Demonstrate knowledge of principles of Conduct of Operations and relate these principles to an operational environment. (General Technical Base 6.1)
3. Demonstrate working level knowledge of DOE 5480.19, Conduct of Operations Requirements for DOE facilities, necessary to ensure implementation. (Technical Manager 1.1)
4. Demonstrate familiarity level knowledge of the guidance provided in DOE 5480.19, Conduct of Operations Requirements for DOE facilities, as related to the oversight of site/facility conduct of radiological work activities. (Radiation Protection 2.9)

I. Purpose of Course

The purpose of this training course is to instruct DOE personnel in understanding the principles of conduct of operations (CONOPS) and its implication on safety of the employee, equipment, and environment, as well as its impact on the productivity at the DOE sites.

The course also covers performance based assessment, performance measures, and Other CONOPS related directives such as DOE/EH-0256T, Radiological Controls (Radcon) Manual, DOE 0 232.1, Occurrence Reporting and Procedures of Operations Information, DOE 0 430.1, Life Cycle Asset Management, and DOE 5700.6C, Quality Assurance.

II. What is Conduct of Operations?

- Conduct of Operations is a method of performing work that helps to ensure quality, consistency, and safety in operations.
- Conduct of Operations applies to everyone regardless of how minimal the hazards they may be exposed to during the daily performance of their jobs.
- Conduct of Operations emphasizes the fundamental attributes to achieve success in every organization: Communications, Turnover, and Setting Goals.
- DOE 5480.19: This Order addresses Conduct of Operations requirements for DOE Nuclear Facilities, and consists of an order and an attachment with eighteen chapters of specific guidelines.

III. Chapter Summary

Ch. 1: Operations Organization and Administration

Overview: This chapter describes the administrative controls and practices that, when implemented fully, result in an effective and safe operational environment. Beginning with DOE facility policies that describe the philosophy of standards of excellence under which the facility is operated and establish clear lines of responsibility for normal and emergency conditions, other principles are suggested for the control of operations. These are: establishing written standards for operations, providing adequate resources to permit effective implementation, periodically monitoring and assessing performance, and holding personnel accountable for their performance. Administrative controls put into place a system whereby operational effectiveness and safety can be measured and analyzed. The development and implementation of corrective actions follows. Continuous improvement in efficiency and safety is thus achieved in accordance with total quality management principles.

Ch. 2: Shift Routines and Operating Practices

Overview: This chapter describes some important aspects of routine shift activities and watchstanding practices that promote the professional conduct of operations personnel and result in meeting DOE and facility management expectations for operator performance. Professional conduct and good watchstanding practices result in appropriate attention to facility conditions, a necessary part of maintaining a safe and effective operational environment. Key elements are: effective equipment monitoring to detect abnormal conditions or adverse trends, notifying supervisors promptly of unusual or unexpected situations, understanding equipment status and operational authority, and following proper industrial safety, radiological protection (if applicable) and quality assurance practices.

The chapter specifically provides guidelines for status practices, safety practices, operator inspection tours, use of round/tour inspection sheets, personnel protection, response to indications, resetting protective devices, load changes, authority to operate equipment, shift operating bases, and potentially distractive written material and devices.

Ch. 3: Control Area Activities

Overview: This chapter recognizes the control area or control room as the most critical facility operating base and the coordination point for all important facility activities. It stresses principles involving limited control area access, professional behavior of personnel in the control area, monitoring of main control panels, control operator ancillary duties, and operation of control area equipment. Errors and unnoticed equipment problems occur if formality and attention to detail is not practiced by operators in the control room.

Ch. 4: Communications

Overview: This chapter describes the important aspects of a plant program for audible communications and emphasizes that accurate communications are essential for the safe and efficient operation of facilities.
Audible communications are used to transmit operating and emergency information within the facility. Examples are oral (face-to-face), telephone, radio, public address (page) announcements, sound powered phones, and special sounds (horns and bells). Guidance provided includes the practice of repeating back instructions to ensure accurate transmission and receipt of verbal instructions, use of standardized terminology, and use of a phonetic alphabet. Inadequate communication is a common root cause behind operator error. On the softer side, personnel morale, which can indirectly affect facility efficiency and safety (consider incidents of sabotage, equipment tampering, and malicious compliance), depends on open, honest and clear communications.

Ch. 5: Control of On-Shift Training

Overview: The guidelines of this chapter relate to control of training activities by operations personnel. On-shift training should be conducted so that the trainee satisfactorily completes all of the required training objectives and receives maximum learning benefit from this experience without unduly affecting normal operations. Facility operation by personnel under instruction should be carefully supervised and controlled to avoid mistakes in operations by unqualified personnel and to use trainee’s time effectively. These controls are therefore necessary to maintain safe and efficient operation of the facility during the conduct of hands-on training.

The following are key elements: adherence to formal training programs, use of instructors that are qualified themselves on the subject equipment, supervision and control of trainees by qualified operators, operator qualification program approval, formal training documentation, suspension of training during abnormal or accident conditions, and establishing a maximum number of trainees at one time.

Ch. 6: Investigation of Abnormal Events

Overview: This chapter covers important aspects of the abnormal event investigation program. Abnormal events do occur and when they do, they often cause an impact on the safe and efficient operation of the affected facilities. Therefore a program for the investigation of abnormal events should ensure that facility events are thoroughly investigated to assess the impact of the event, to determine the root cause of the event, to ascertain whether the event is reportable to DOE (per DOE 232.1) and to identify corrective actions to prevent recurrence of the event. As future events are prevented through successful implementation of this program, the safe and efficient operation of the facility is improved.

Ch. 7: Notifications

Overview: This chapter provides guidelines to ensure uniformity, efficiency, and thoroughness of notifications that support fulfillment of DOE requirements consistent with DOE O 232.1. Proper notifications of abnormal or unusual events contributes to safe and efficient operation of the facility in a couple of ways. The first is that the notification results in the involvement of a larger pool of people whose knowledge can help stabilize and resolve the immediate situation at hand. The second is that being trained to follow a rigorous notification process ensures that vital information, needed to analyze and prevent future recurrence, is not overlooked.

Ch. 8: Control of Equipment and System Status

Overview: This chapter provides an overall perspective on control of equipment and system status. Control of equipment and system status contributes to safe and efficient facility operations by ensuring that an adequate "safety envelope" exists to authorize and perform work. A facility's safety envelope is defined by the proper operation and configuration of a set of equipment considered vital to a safe operating environment. This equipment is termed "vital safety equipment." If a piece of equipment fails or is shut down for maintenance, this fact needs to be recorded so that affected operations can be terminated or prevented until the equipment or system is restored. In the case where redundant equipment exists that could be operated to maintain the safety envelope for continued operations, its status must be known in order for it to be relied upon. Temporary modifications must also be tracked for the same reasons.

Ch. 9: Lockouts and Tagouts

Overview: This chapter describes the important elements of a Lockout/Tagout Program and is intended to meet the requirements of 29 CFR 1910. A safe and efficient operational environment is maintained by providing a method for equipment status control through component tagging or locking which should protect personnel from injury, protect equipment from damage, maintain operability of plant systems, and maintain the integrity of the physical boundaries of plant systems. Appropriate and proper use of tags and locks prevents inadvertent operation of equipment when there is a potential for equipment damage or personnel injury during equipment operation, servicing, maintenance, or modification activities.

Ch. 10: Independent Verification

Overview: This chapter describes the important aspects of an independent verification program which when implemented should provide a high degree of reliability in ensuring the correct facility operation and the correct position of components such as valves, switches, and circuit breakers. This is important to the safe and efficient operation of a facility because independent verification recognizes the human element of component operation; that is, any operator, no matter how proficient, can make a mistake. Thus when mistakes are found and corrected before an operation takes place, safety and efficiency are improved.

Ch. 11: Logkeeping

Overview: This chapter describes the features needed in the operation logs to ensure they are properly maintained. Operations logs should be established for all key shift positions and should contain a narrative of the facility's status and all events as required to provide an accurate history of facility operations. Proper logkeeping is essential to the safe and efficient operation of a facility because it provides the data necessary for the reconstruction of abnormal or unusual events. When the data is properly analyzed and corrective actions are taken, subsequent recurrence of the event should be prevented. Logkeeping also promotes personal accountability and improved communication of information about the facility's status among operating personnel.

Ch. 12: Operations Turnover

Overview: This chapter describes the important aspects of a good shift turnover. The comprehensive transfer of information pertinent to the operation of the facility is vital to safe and efficient operations, as evidenced by a historically high error rate associated with poor shift turnovers resulting from improper reviews of logs, unclear communications and neglecting to discuss key operating parameters and status. Safe operations also depend on operating personnel being fit for duty. Therefore, it is also the responsibility of the off-going person to determine this by looking for evidence of sickness with corresponding degradation of mental or physical ability to do the job due to the sickness itself and/or the effects of medication the person might be taking. Other compromising conditions such as drug and alcohol abuse should also be considered among the things to look for.

Ch. 13: Operations Aspects of Facility Chemistry and Unique Processes

Overview: This chapter describes the important aspects of operations involving chemistry and unique processes and their relationship to safe and efficient facility operation. Operational monitoring of facility chemistry or unique process data and parameters should ensure that parameters are properly maintained. Proper monitoring will identify problems before components or safety are adversely affected. Operating personnel must be knowledgeable about the chemicals and processes they are working with and depending upon so that they can detect and correct off-normal parameters in a timely manner.

Ch.14: Required Reading

Overview: This chapter describes an effective required-reading program. Such a program contributes to facility safety and efficiency by ensuring that appropriate individuals are made aware of important information that is related to job assignments. Procedure changes, equipment design changes, related industry and in-house operating experience information, and other information necessary to keep operations department personnel aware of current facility activities are examples of the kind of useful information that should be made available to keep operating personnel current.

Ch. 15: Timely Orders to Operators

Overview: This chapter describes the key features of an effective operator orders program. This contributes to safe and efficient operation by providing a means for communicating current, short-term information and administrative instructions to operations personnel. This becomes necessary to accommodate the changing needs and requirements of DOE facility operations. For example, orders could include instructions on the need for and performance of specific evolutions or tests; it could also include work priorities, announcements of policy information, and administrative information. Typical information includes special operations, administrative directions, special data-collection requirements, plotting process parameters, and other similar short-term matters.

Ch. 16: Operations Procedures

Overview: This chapter describes the important aspects of operations procedure development and use. Operations procedures should provide appropriate direction to ensure that the facility is operated within its design basis and should be effectively used to support safe operation of the facility.
When operations personnel adhere to the policy to follow approved, properly written procedures, their operational performance should be always be consistent and safe.

Ch. 17: Operator Aid Postings

Overview: This chapter describes the important aspects of an operator aid program. Facility operator aids (information posted for personnel use) should provide information useful to operators in performing their duties and thus provide an important function in the safe operation of the facility, provided that they are kept current and do not conflict with any other controlled procedure or information. Examples are copies of procedures (portion or pages thereof), system drawings, handwritten notes, information tags, curves, and graphs.

Ch. 18: Equipment and Piping Labeling

Overview: This chapter describes the important aspects of a labeling program. A well-established and maintained equipment labeling program should help ensure that facility personnel are able to positively identify equipment they operate. It will enhance training effectiveness, help reduce operator and maintenance errors resulting from incorrect identification of equipment, and reduce personnel radiation and other hazardous material exposure as operators spend less time identifying components.

DOE 5480.19 :

- Is one of the most cross cutting Orders in DOE - it not only addresses operations, but also quality assurance, training, radiological controls, and maintenance, just to name a few.

- Represents a departure from an “expert” based system to “standard” based system. DOE 5480.19 establishes a standard by which workers can conduct their duties

- Proposes principles and guidelines that promote safety to workers, equipment, and the environment while ensuring quality output.

- Is a safety order, the concepts of which apply to everyone.

IV. What does Conduct of Operations do for DOE?

- Establishes standards of excellence in DOE operations by providing requirements and guidelines.

- Establishes uniform standards in DOE facilities by applying the concepts to all department elements and contractors.

- Promotes safety and effectiveness. How does it do this?

In other words:

- By applying the principles outlined in DOE 5480.19, DOE will promote safety and effectiveness in the operation of facilities. This translates into saving time, money, and possibly preventing injuries to workers.

- Conduct of Operations principles prevents injuries. Too many injuries and sometimes even death have been occurred due to "dumb" mistakes and complacency.

- Simply put, many DOE facilities do dangerous operations. Conduct of Operations, if applied properly, will minimize the potential for mishaps.

V. History and Development of Conduct of Operations:

The following bullets give a basic summary of the cause and some of the more significant results of three well recognized accidents. Common to the corrective actions for these incidents was a need to improve the state of Conduct of Operations and to improve the level of discipline in daily operations

A. Three Mile Island:

Cause: A chain of minor equipment failure, maintenance oversight, and operator deficiencies.

Result: The worst nuclear power accident in U.S. history (in terms of $ spent to correct). Billions of dollars spent on cleanup.

B. Bhopal Incident:

Cause: Small interrelated problems that compounded into an uncontrollable release. Operators failed to understand and abide by fundamental principles and practices.

Result: Methyl Isocyanate release from Union Carbide plant causing approximately 10,000 deaths.

C. Chernobyl:

Cause: Turbine generator testing gone awry. Lack of control in use of procedures for testing. Operators unfamiliar with plant status.

Result: Core meltdown, explosion, and total loss of facility. (Hundreds of) Fatalities. The resulting radiation/contamination release continues to cause measurable worldwide impact.

VI. DOE History of CONOPS related Incidents:

The following are several DOE incidents that indicate a lack of proper Conduct of Operations

- Digging Accident,
- Fork lift accident, and
- Improper Lockout/Tagout

A. LABORER SEVERELY INJURED WHEN JACKHAMMER HITS BURIED 13,200 VOLT LINE

1. **Summary:** On January 17, 1996, a laborer at the Los Alamos National Laboratory was burned and rendered unconscious when he hit a buried 13,200 -volt electrical power cable with a jackhammer while excavating in the basement of Building 209 in Technical Area 21. Building 209 houses the Laboratory's Tritium Science and Fabrication Facility. The laborer's foreman immediately notified the Tritium Science and Engineering group office and a secretary called 911. Medical personnel responded and transported the laborer and foreman to the Los Alamos Medical Center. Electrical power to the building and surrounding buildings was disrupted; however, no abnormal amount of tritium was released during the loss of building power. This event is significant because the laborer was unaware of the electrical hazard because of poor work control. As a result, he is hospitalized and listed in critical condition with serious burns. (ORPS Report ALO-LA-LANL-rSF-1996-0001)

2. **Description:** The laborer and foreman were excavating for installation of a sump pump in the building basement. The project required them to remove a section of the concrete floor and dig a 3 foot-deep hole in the southwest corner of the basement. The foreman and laborer removed the section of concrete and began removing the earth. The laborer and foreman were wearing personal protective equipment consisting of gloves, safety -toe shoes, hard hats, and eye and ear protection. They were taking turns using a jackhammer and shovel to remove the earth.

   Investigators said the laborer gave the foreman the shovel and started using the jackhammer and shortly after that the foreman observed the laborer holding the jackhammer and shaking, followed by an explosion. When the laborer started to fall into the hole the foreman pulled him partially out and ran for help. The facility manager designee and a secretary arrived at the scene first and administered CPR until emergency medical personnel arrived. The foreman suffered from smoke inhalation and was released that day from the Los Alamos Medical Center; the laborer was later moved from the Center to a hospital in Albuquerque.

Electrical power supply to Building 152, the Tritium Systems Test Assembly (TSTA-155), and the Tritium Science and Fabrication Facility (TSFF-209) was disrupted. The TSTA diesel generator automatically started and supplied electrical power to all critical safety loads at TSTA-155 and the ventilation exhaust blower at TSFF-209. The TSFF-209 tritium stack monitors, fire protection, and security systems were powered from uninterruptible power supply batteries. Laboratory safety engineers and utilities personnel grounded the electrical line to TSFF-209, tagged out the power supply, and restored electrical power to Building 152 and TSTA-155. Utilities personnel cleared debris from the excavation hole and verified that the 13,200-volt cable was de-energized. Electrical power to TSFF-209 is being temporarily supplied by a portable diesel generator.

3. **Lessons Learned:** Facility managers conducted a critique of the occurrence and determined that

   - safety engineers had not performed a review to identify health and safety hazards before the job started.

   Although the standing work order had received a safety review,

   - the individual work tickets directly associated with the work order had not been reviewed.

   In this case, even though a work ticket was written against the standing work order, the craftsmen did not know that an excavation permit and an environment, safety, and health review were required for concrete cutting and sub-slab excavation inside a building.

   - The protective equipment the jackhammer operator wore was an ineffective barrier against the 13,200-volt electrical hazard.

4. **Corrective Actions:** Facility maintenance managers issued a stop work for all standing work orders pending review by environment, safety, and health safety engineers. All excavation and penetration operations were stopped until policies and programs could be reviewed. On January 19, safety engineers issued a safety alert regarding the incident.

As a result of this event, two directives were issued at Los Alamos National Laboratory. On January 17, 1996, the Laboratory's support services contractor immediately suspended excavation jobs and ground and wall penetration work until a hazard analysis was completed. On January 18, Laboratory managers initiated a moratorium suspending all maintenance, construction, environmental restoration, and D&D activities unless a safety hazard analysis was performed. Special attention was given to excavations or penetrations of surfaces where workers might encounter energized electrical wiring or components. Only one week after these directives were issued, the following event was reported at Los Alamos National Laboratory.

On January 25, 1996, inspectors at the High Explosive Machining/processing facilities discovered a violation of the construction work moratorium. They observed concrete pad penetration work during a construction safety inspection of a project site. Managers immediately enforced the stop-work order. (ORPS Report ALO-LA-LANL-HEMACHPRES-1996-0001)

A preliminary investigation revealed that the project leader was aware of the moratorium, and had suspended some activity. However, he decided to drill 3/8-inch diameter holes, approximately 2 1/2-inches deep, for hilti-type bolts in a concrete corridor building without a supplemental formal safety hazard review as directed by the two moratoriums. A standing work order for this job had received an overall safety review, but both moratoriums stated that any work order supplemented by additional work instructions required an additional safety review before work could begin. <u>The standing work order process and status of the safety hazard review at this facility was similar to that in the jackhammer event that initiated the directives.</u> A contributing cause of this event was that work planners failed to identify the need to de-energize power to the building, or provide a lockout/tagout for circuits known to be in the vicinity of the trench work.

B. TECHNICAL STAFF MEMBER INJURED IN FORKLIFT ROLLOVER ACCIDENT

1. **Summary:** On November 22, 1995, a technical staff member of Los Alamos National Laboratory suffered a broken jaw and fractured vertebrae when the forklift he was operating rolled over on him. A technician working with the technical staff member to replace gas cylinders summoned emergency assistance and lifted the forklift's overhead guard off the technical staff member's neck. Emergency personnel extracted the technical staff member and transported him to the hospital. This event is significant because the technical staff member was not trained or certified to operate the forklift. As a result of the accident he required a seven week hospitalization.

2. **Description:** A Chemical Science and Technology (CST -12) Division technician noticed that three gas cylinders providing gas to instruments needed replacing to ensure adequate gas flow during the Thanksgiving holiday. The regular forklift operator, was on vacation that day. A technical staff member in the area to work on software, agreed to assist the technician in moving full cylinders from the storage rack. The technical staff member obtained a forklift and set the forklift tines into the slots of a gas cylinder rack attachment.

   The technical staff member drove the forklift up over a 3 to 4 inch curb at the edge of the building by using a rocking motion to get the forklift over the curb and onto the building apron, stopping the forklift once it was fully on the building apron. The forklift left skid marks and scratches on the building apron.

   The technical staff member slowly drove the forklift forward, reaching part of the building apron that was partially restricted by an electrical box and some bar stock. The technical staff member observed that the left front wheel of the forklift was near the edge of the building apron and turned away from the edge. The rear of the truck moved towards the edge and a rear wheel passed over the edge. The forklift slid off the building apron and toppled onto its side. It came to rest on the grassy slope of a drainage ditch adjacent to the building apron. The technical staff member was pinned underneath the overhead guard and was in a fetal position with the top of the guard lying across the neck, just below the jaw line. His left foot was pinned beneath the body of the forklift.

The technician summoned emergency responders, returned to the scene and with the help of other local personnel, was able to lift the forklift's overhead guard off the technical staff member's neck and support the guard on wooden blocks. The technical staff member's face had turned purple but once the guard was lifted off his/her neck, facial color began to return to normal. This rescue effort is recognized as probably instrumental in saving the technical staff member's life and certainly prevented the occurrence of further injury before professional rescue personnel arrived.

After arriving at the accident scene, the fire department required 17 minutes to extract the technical staff member from the overturned forklift, hampered by his pinned foot. The technical staff member was unconscious and unresponsive; cyanotic, but breathing on his own; and bleeding from the mouth.

3. **Lessons Learned:** The technical staff member indicated he was aware of the Laboratory requirements for forklift operation, but was not a licensed operator, and had not received any forklift training.

4. **Corrective Actions:** Laboratory management immediately suspended all Laboratory forklift operations. The moratorium required each Laboratory organization that owned or operated forklifts to submit information including a list of licensed operators, a list of forklifts, and inspection and maintenance records. After review by a forklift restart committee, forklift operations were restarted on a case by case basis.

C. IMPROPER LOCKOUT/TAGOUT DISABLES AIR COMPRESSORS

1. **Summary:** On March 1, 1996, at the Savannah River Tritium Facility, a maintenance mechanic placed "Do -Not-Operate" tags on two valves without authorization, that isolated cooling water, disabling two of three operating instrument air compressors. An operator, mistakenly considered the loss of the air compressors an emergency, and opened the two cooling water valves with Do -Not-Operate tags and notified the shift operating manager of this operation. The shift operating manager realized that the operator should not have operated the valves and informed the shift manager, who ordered the tags removed and the air compressors returned to service. This event is significant because unauthorized actions, inadequate work planning, poor communications, and improper use of procedures that could have resulted in equipment damage.

2. **Description:** After a back flow preventor valve failed a routine check, maintenance personnel suggested there may be a leaking gate valve. The shift operating manager and the maintenance supervisor determined that a single valve, non -documented lockout would isolate the leaking valve. They did not refer to system piping or electrical drawings. The operating manager instructed the maintenance supervisor to ask the shift technical advisor to evaluate the situation. The shift technical advisor and a maintenance mechanic walked down the piping to determine which valves were necessary to provide single and double lockout isolation. They also did not use the system piping or electrical drawings and, therefore, did not realize that the valves identified for the double lockout would cut off cooling water to both instrument air compressors.

   The mechanic obtained a single Do -Not-Operate tag from the shift manager, closed the valve, and hung the tag. When he breached the valve bonnet on the leaking valve, water came out of the valve. The mechanic returned to the control room, obtained two more tags, logged them in the non -documented lockout log, and left the log open to his entry for the shift manager. He went back to the field, closed the valves and installed the tags, and left the area.

3. **Lessons Learned:** Investigators determined that the following causes contributed to this event:
   - inadequate pre-work planning,
   - inadequate communications to affected personnel,
   - lack of understanding and experience on non-documented lockouts/tagouts,
   - failure to follow the procedure for non-documented lockouts/tagouts, and
   - failure to use drawings to determine the effect of lockouts/tagouts.

   Investigators also determined that proper isolation of the leaking valve required lockouts of seven valves and two electrical circuits.

4. **Corrective Action:** The facility manager initiated the following corrective actions. He suspended all non documented lockouts/tagouts until personnel are re-trained on non-documented lockouts/tagouts. He ordered an evaluation and modification of the work planning program and re-training of operating personnel when the modification is completed. He also stressed to his shift managers the need to communicate system configuration changes to auxiliary operators. He ordered clarification of the criteria for emergency lockout/tagout removal and the re-training of the operators.

VII. Summary:

In the aftermath of the Three Mile Island incident the director of another very successful nuclear reactor program responded during a congressional inquiry that the “secret” to the success of that program was ”Far from a simple gimmick”.

Rather, successful team operations depend upon a streamlined organizational structure; talented, well-trained players; well-defined goals and rules of the game; continuous self-critical observation; and above all, caring leaders who set high standards and then proceed to live the standards every day in front of their subordinates. Without it, the dangers of complex equipment operation escalate dramatically.

VIII. Organization of Presentation into Five Key Areas:
The eighteen chapters of Attachment 1 to DOE 5480.19 have been grouped into the following five sections for sake of logical presentation. The following chapters will be presented in these groupings.

Module	Title	Chapters
II	Operations Management	1, 5, 14, 15
III	Routine Operations	2, 3, 4, 11, 12, 13
IV	Equipment Control	8, 9, 10, 18
V	Control and Use of Procedures	16, 17
VIII	Investigation and Notifications	6, 7

NOTES